

P RIDGE SOUTH PIT, AMEND. NO. 1 SITE

T&E HABITAT ANALYSIS

Location

The proposed permit study area is located approximately 10 miles north of Hartford, Kentucky, in Ohio County (Pleasant Ridge USGS 7.5 minute topographic quadrangle), with its center at Latitude: 37° 35' 24" N, Longitude: 86° 59' 17" W. The site can be accessed from KY2115, off US 231 north of Hartford. The project is located in the Western Coal Field Region of Kentucky. Streams within the project flow to the North Fork of Barnett Creek, which is part of the Rough River Watershed.

Threatened and Endangered Species

Topography in the area generally consists of hilly terrain and a wide valley bottom with mild relief. Land use in the project area includes forest, wetlands, ponds, pastures and roads. The 114.3-acre study area predominantly consists of forest, with some agricultural lands (approximately 8 acres is currently being pastured). The forest age ranges from mature, second-growth forest to young forest comprised of saplings and thick undergrowth. Dominant tree species include maple species, oak species, sycamore, elm, and poplar. Much of the study area has been timbered. Potential summer roosting and foraging habitats exist on the proposed Pleasant Ridge South Pit Mine Site. A summer survey for Indiana bat presence has not been conducted.

The geology is composed of Pennsylvanian age bedrock of the Tradewater and Caseyville Formations, which consists of shales, sandstone, siltstone, coal and limestone (Smith 1968).

The Kentucky Department of Natural Resources, Division of Mine Permits. Surface Mining Information Database indicated that the P. Ridge South Pit area has been mined in the past. Abandoned oil wells and water injection wells are located on the project's southeast side.

Soils in the project boundary are made up of:

FsE-Frondorf-Wellston-Rosine silt loams, 20-30% slope

Sf-Steff silt loam, occasionally flooded soils of flat floodplains

WeD2-Wellston silt loam, 12-20 % slopes, eroded soils on moderately steep uplands

ZaC2-Zanesville silt loam, 6-12 % slopes, eroded, well-drained soils on hilltops and side slopes

ZaC3-Zanesville silt loam, 6-12% slopes, severely eroded, well-drained soils mostly on side slopes and uplands

Threatened and endangered species databases do not indicate the occurrence of the Indiana bat or the Gray bat within the project boundary. The federally endangered Indiana bat (*Myotis sodalis*) has the potential to occur in Ohio County, Kentucky (USFWS 2008), as well as the federally endangered Gray bat (*Myotis grisescens*). Both species are cave-dwelling bats for part (Indiana bat) or all (Gray bat) of the year.

Hibernation site requirements for the Indiana bat include caves and mines with large volumes, extensive passages, and stable temperatures below 10 degrees Celsius (USFWS 2007). Somewhat similar habitat is required for the Gray bat. The Pleasant Ridge USGS topographic quadrangle does not show any cave or mine adit symbols within the project boundary. The Kentucky Surface Mining Viewer (2010) and Available Mine Maps from the Kentucky Mine Mapping Initiative (2010) were accessed for locations of mine shafts and active and closed permits. The Available Mine Maps show abandoned strip mining in the project area.

The Kentucky Fish and Wildlife Information System review did not indicate any recorded Indiana bat or Gray bat observations for Ohio County (KDFWR 2010). Records do occur in adjoining Daviess County. There are no Priority 1-4 caves listed in the Indiana bat's Recovery Plan for the county (USFWS 2007), nor the Gray bat's Recovery Plan (USFWS 1989). Based on the available information, no "known habitat" occurs in the study area or within a 10-mile radius.

Due to the potential caves, rockshelters, and abandoned underground mines to be present on-site, personnel from T.H.E. Engineers investigated the project area for any potential habitat in November, 2012. No caves, underground mines, or potential winter habitat for the Indiana bat were found on the project site.

Some potential summer roosting and foraging habitats exist on the proposed P Ridge South Pit mine site. The site is composed of approximately 114.3 acres of second-growth or younger forest. Land use in the project area includes forest, wetlands, ponds, and roads. A summer survey for Indiana bat presence has not been conducted.

The following photographs indicate conditions on-site at time of field investigation.





The USFWS species database lists several federal and state listed species as being known from Ohio County: the fanshell (*Cyprogenia stegaria*), and clubshell (*Pleurobema clava*), with two observations each. Other federal and state listed species known to occur in Ohio County include the rabbitsfoot (*Quadrula cylindrica cylindrica*) with three recorded observations, and the copperbelly water snake (*Nerodia erythrogaster neglecta*) with eight recorded observations. Kentucky's Comprehensive Wildlife Conservation Strategy describes the preferred habitat for each above referenced mussel species. Most of the species prefer medium-sized to large rivers with sand and gravel substrates. No suitable habitat for any of these mussels is located within the project area. The copperbelly water snake is found in wetland type situations and adjacent fields and could potentially occur within the project area.

In addition to the above referenced species, a number of State listed species have potential to occur in the proposed project area. If any of the State listed species are found within the project boundary, appropriate documentation with Kentucky Department of Fish and Wildlife Resources will be provided. See Table below for State endangered and Threatened species documented in Ohio County.

SCIENTIFIC NAME	COMMON NAME	KY STATUS	REFERENCE OCCURRENCES
<i>Anas clypeata</i>	Northern Shoveler	E	1
<i>Anas discors</i>	Blue-winged Teal	T	2
<i>Ardea alba</i>	Great egret	E	1
<i>Asio flammeus</i>	Short-eared Owl	E	12
<i>Asio otus</i>	Long-eared Owl	E	1
<i>Circus cyaneus</i>	Northern Harrier	T	111
<i>Clonophis kirtlandii</i>	Kirtland's Snake	T	1
<i>Egretta caerulea</i>	Little Blue Heron	E	1
<i>Egretta thula</i>	Snowy Egret	E	1
<i>Erimyzon sucetta</i>	Lake Chubsucker	T	2
<i>Fulica americana</i>	American Coot	E	2
<i>Gallinula galeata</i>	Common Gallinule	T	2
<i>Haliaeetus leucocephalus</i>	Bald Eagle	T	5
<i>Hybopsis amnis</i>	Pallid Shiner	E	2
<i>Ixobrychus exilis</i>	Least Bittern	T	3
<i>Lophodytes cucullatus</i>	Hooded Merganser	T	1
<i>Pandion haliaetus</i>	Osprey	T	41
<i>Phalacrocorax auritus</i>	Double-crested Cormorant	E	2
<i>Podilymbus podiceps</i>	Pied-billed Grebe	E	3

Should any of the State listed species be identified in the area during any project area studies, they will be reported to Kentucky Department of Fish and Wildlife Resources for their occurrence database compilation.

REFERENCES

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- U.S. Fish and Wildlife Service (USFWS). 2007. Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision. U.S. Fish and Wildlife Service, Fort Snelling, MN. 258 pp.
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- U.S. Fish and Wildlife Service and Kentucky Department of Fish and Wildlife Resources. 2009. Indiana Bat Survey Guidance for Kentucky. Frankfort, KY.